

origin for all sorts of disease, and presents certain examples of unusual conditions, which, to his surprise, proved to have a bacteriological origin. One of the cases recorded is that of an extensive X-ray dermatitis, which yielded a streptococcus in cultures and responded to streptococcus vaccine. Others were cases of toothache and pyorrhea, and one was a case of pruritis ani. He points out that the origin of urinary calculi is almost always in a microbic nucleus. He says that many cases of indigestion, vomiting, flatulence and distension of the stomach are due to bacterial infection of the stomach, most often due to streptococci which have been swallowed with the food. He says that much of the pain in cancer is also due to the secondary infection by the micrococcus neoformans of Doyen. He refers to the treatment of diabetes in one case by the administration of bacillus coli vaccine, and in several others of staphylococcus vaccine. Doubtless these cases were due to an infection of the pancreas by one or other of these micro-organisms.

He refers to enuria as being attributable in certain cases to an infection of the bladder by the bacillus coli or some other micro-organism.

When he comes to discuss the limitations, as contended for by the bacteriologist, he points out the necessity of an exact and complete bacteriological diagnosis as a *sine qua non* for a proper understanding of the condition and for its appropriate treatment. He draws attention to certain tests which can be used to determine whether or not a cure has been effected in any given case. These tests have to do with the estimation of the opsonic index of the blood at certain stages during the course of the treatment, from which his deductions are made, but these considerations need not detain us here.

He says that the only one of the contentions in column two which is in any sense of the word controversial, is that it is not infrequently essential to success that the doses of vaccine shall be controlled by the measurements of the opsonic index, and he proceeds to take up the cudgels on behalf of his method of measuring this index. We will just mention his conclusions:

"I have satisfied myself, and all my fellow-workers have satisfied themselves, and I am glad to say a very large and increasing number of bacteriological workers all over the world have satisfied themselves, that when the 'functional error' has been reduced, as it can be by practice and patience, to small dimensions, and when, in connection with tubercle, the customary counts of 100 or more leucocytes are made, the 'mathematical limit of error' of the opsonic index is such as need not seriously be taken into account. In